organ," in the feature of their having *two limbs*, being therefore looped, although only rudimentarily. The author then proceeds to give an account of his studies into the history of this organ amongst the grotesque and highly varied species of the genus *Polynoë*. They have rendered it certain that throughout the family of the Aphroditaceæ there obtains but *one type of segmental organ*, and *that upon it always are ingrafted the generative structures*.

At this stage the attempt is made to show that the segmental organs of the Echinidæ, Asteriadæ and Holothuriadæ conform, structurally and functionally, in the most remarkably intimate manner with the typical standard exhibited by this organ in the Aphroditaceæ. But between these Echinoderm and Annelidan families the author attempts to indicate other zoological affinities. He shows, that, according to his researches amongst the Aphroditaceæ, there is no trace whatever to be discovered of a blood-vascular system. In this respect they correspond with the Echinidan and Asteridan families. He shows that in the Aphroditaceæ the general cavity is never, under any circumstances, used as an incubatory chamber. In this point of their generative history the Echinidæ and Asteriadæ exactly agree with the Aphroditaceæ.

The author regrets, that, in consequence of the difficulty of obtaining specimens, he is obliged to defer to a second memoir many special points of anatomical structure and physiological relations, the determination of which he still feels to be necessary to the complete history of the segmental organ in the Annulose and Radiated classes.

The paper is illustrated by numerous drawings.

III. "Addition to a Memoir on the Determination of Unknown Functions that are evolved under Definite Integrals." By J. Gomes de Souza, Esq. Communicated by Dr. Sharpey, Sec. R.S. Received November 1, 1856.

In his previous communication (Proceedings, June 12, 1856) the author developed φx in terms of the function $A\ e^{m_r x}$. In the present communication he developes in a more general way, using terms of the form $A_r \int_r^{\delta} e^{x\omega} \varpi(\omega_1 m_r) d\omega$, the function of ϖ being assumed at pleasure.